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SCIENCE AND MEDICINE DIVISION

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Civil Defence Welfare Survey Operations Room, Liverpool, N.S. ...

(See story inside)

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EDITORIAL COMMENT

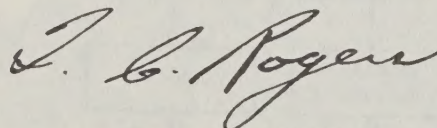
With the first issue of "Civil Defence - Canada" away and all dressed up in its new format, we are beginning to receive comments on the changes made. So far they have all been complimentary and may we take this opportunity to thank those who have written for their remarks.

Needless to say, "Gremlins" crept in and we were aghast to see the first copies appear without a date line. This in turn caused some research and we trust that future issues will reflect the slight change in printing procedure which should eliminate such errors.

An addendum to the news item concerning Major S.N. White's success in a recent British Armed Forces essay competition is reference to the fact that Major-General G.S. Hatton, D/FCDC, was also a runner-up in the previous year's competition for his essay, "Logistic Flexibility For Our Land Forces". With these admissions, lets turn to this issue.

As a continuing project we draw your attention to "A Report On Health Service Progress", one of a series from each Service at Federal Headquarters. Several staff changes at Headquarters are also included. We regret to see old friends leave but extend a welcome on your behalf to the new arrivals.

In our travels across Canada this past year, we have met many members of the Civil Defence organization, who, by their comments, suggestions and material submitted have and will enable us to produce a publication which, we hope, will meet the requirements of our readers.



Editor.

A REPORT ON HEALTH SERVICE PROGRESS

By Dr. E. J. Young
Deputy Director, CD Health Service

The federal Civil Defence Health Service is concerned with two major problems, namely:-

- (1) The maintenance of health and prevention of disease amongst the population which survive an attack.
- (2) Provision of medical care to casualties and non-casualties including the management of mass casualties.

Until recently the major emphasis was on the second problem, namely the management of mass casualties. This remains a tremendous task but it is now felt that the first problem is of equal, if not greater, importance.

It is apparent that in order to study and plan for the solution of these problems Civil Defence Health Service must of necessity encompass a wide scope of activities. The extent of this is indicated in Figure I.

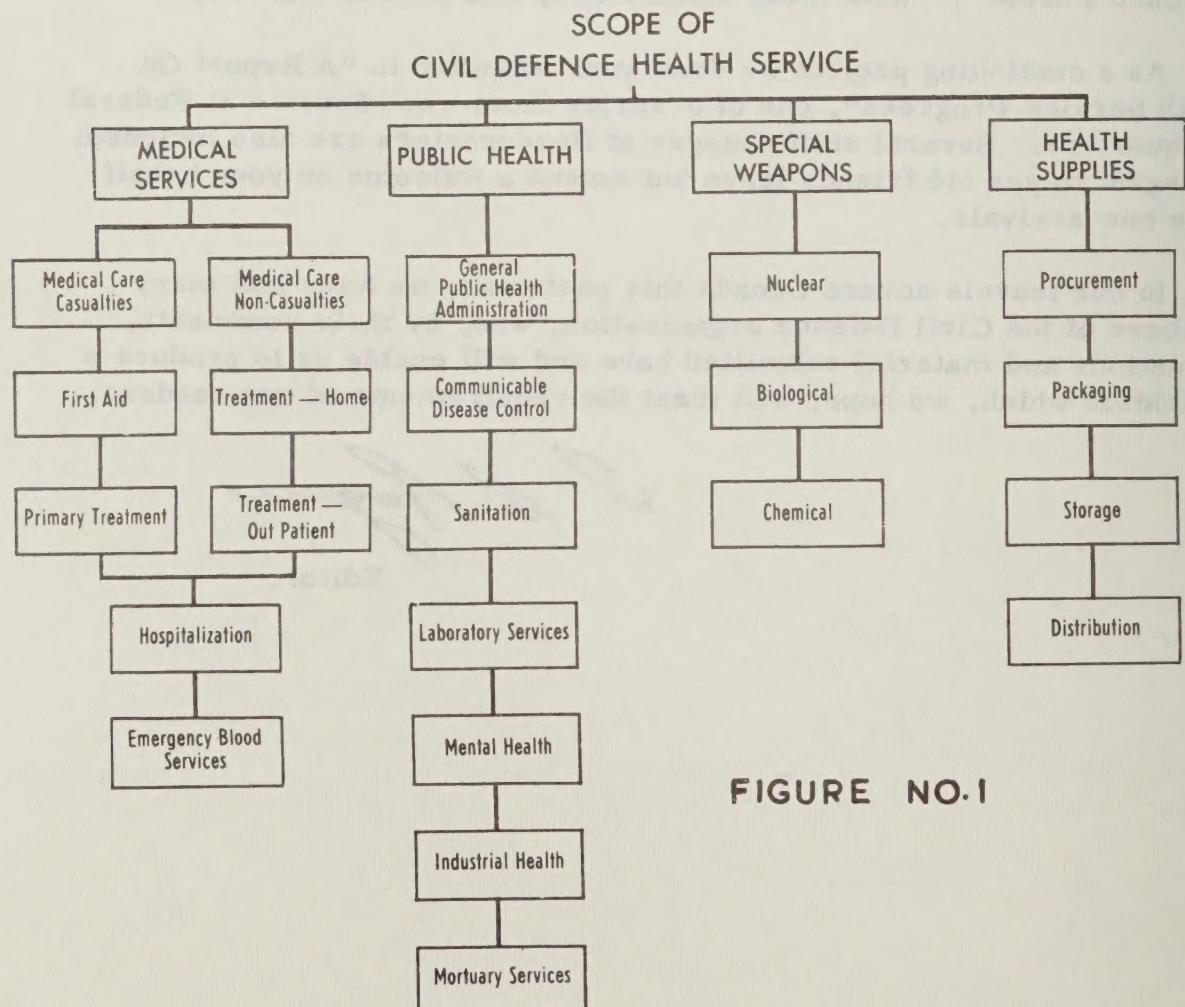


FIGURE NO. I

It is convenient to consider these under four major headings as shown. In addition there are the subjects of Health Organization and Training.

MEDICAL SERVICES

Primary Treatment Services

During the past year a manual entitled Primary Treatment Services has been published. This manual gives the organization, personnel, equipment and operation of the two components of Primary Treatment Services, namely the Casualty Collecting Unit (C.C.U.) and Advanced Treatment Centre (A.T.C.). It also contains information concerning transport and communications requirements of Primary Treatment Services and information regarding the general principles of Mass Casualty Care and the mobilization of Primary Treatment Services. This manual is one of a series which together will eventually form the revised Civil Defence Health Service Manual.

Demonstrations of the operation of an Advanced Treatment Centre are given at all health courses at Arnprior. A recent development in these demonstrations has been the addition, in co-operation with the Special Weapons Section of Civil Defence Health Service of methods of decontaminating casualties that have been contaminated by radioactive material. The principles are to make this as simple a procedure as possible and that decontamination must not delay the treatment of the casualty.



Advance Treatment Centre in operation

Hospital Planning

In the hospital field a report entitled "A Hospital Evacuation Plan", outlining the detailed plans for evacuation of one of Canada's large hospitals, has been published. This report was prepared following a time-motion testing study carried out for Civil Defence Health Service by the reporting hospital. Two manuals, one containing detailed guidance on Hospital Disaster Planning and the other outlining plans and techniques for Hospital Evacuation, have been written and are now being printed.

Active liaison has been maintained with professional organizations such as the Canadian Hospital Association. Through their auspices a questionnaire was sent to active treatment hospitals regarding the state of preparedness of Canadian active treatment civilian hospitals. The answers to these questionnaires are useful in directing the type of consultive help these hospitals need when they proceed with their disaster and evacuation plans.

A nuclear attack on Canada would probably destroy a large percentage of existing hospital beds. In addition provision would have to be made for additional hospital facilities for the management of mass casualties. This need can be at least partially met by the expansion of existing hospitals and by the stockpiling of improvised hospitals.

An improvised hospital contains the supplies and equipment for a 200 bed active treatment hospital. These supplies can be moved on a large trailer or in three trucks and can be set up quickly in a suitable building such as a modern school.

Authority has been granted and money provided for the first sixteen of these hospitals. The equipment has been ordered and it is planned that they will be distributed across the country for demonstration and training as soon as the equipment is received. This, of course, is only a beginning of the Improvised Hospital program since to make good the deficiency in hospital beds following an attack, several hundreds of these hospitals would be required.

First Aid

In September 1958 a most successful conference of senior instructors of the St. John Ambulance Association was held at the Canadian Civil Defence College at Arnprior. In addition to being indoctrinated in Civil Defence the instructors had an opportunity to discuss with a panel of physicians and surgeons the textbook "Fundamentals of First Aid". It is felt that this conference will do much to assist in the teaching of First Aid.

Home Nursing

In home nursing a significant recent advance is the inclusion, as an integral part of the courses of both the Canadian Red Cross Society and the St. John Ambulance Association, of material on the Civil Defence aspects of home nursing.

The Nursing Consultant of Civil Defence Health Service has prepared and distributed a Home Nursing Instructors' Kit. A portable Home Nursing Equipment Kit for training purposes is also available. Reports indicate that the number of trainees in Home Nursing will double in 1959.

Emergency Blood Services

In co-operation with the Canadian Red Cross Society, progress has been

made in the planning for **Emergency Blood Services** and a manual on this subject is nearing completion.

PUBLIC HEALTH

More consideration is now being given to this important subject which is concerned with the first major health problem as stated at the beginning of this article, namely the maintenance of health and prevention of disease in the surviving population. The public health aspects of the Civil Defence Health Service program was one of the subjects discussed at a Specialist Nurses Course in October 1958.

Manuals on sanitation and water supplies have been re-written and are now being reviewed.

With regard to communicable disease control, one of the first requirements in this branch of public health is the identification and notification of communicable disease. The rapid identification and reporting of communicable disease, particularly of unusual diseases, is the concern of both the Public Health and of Special Weapons Sections of the Civil Defence Health Service.

The Special Weapons Section is interested with Biological Warfare. Some time ago this Section convened a working party which recommended an additional system of reporting unusual communicable diseases across the country. This system is now in operation in the majority of the provinces.

There is a need for further planning in Public Health particularly with regard to the accommodation of evacuees in reception areas. There is also a need for further study on the mental aspects of the Health Service program. In order to meet these needs it is planned to convene working parties on the Public Health and the Mental Health aspects of our program in 1959.

SPECIAL WEAPONS

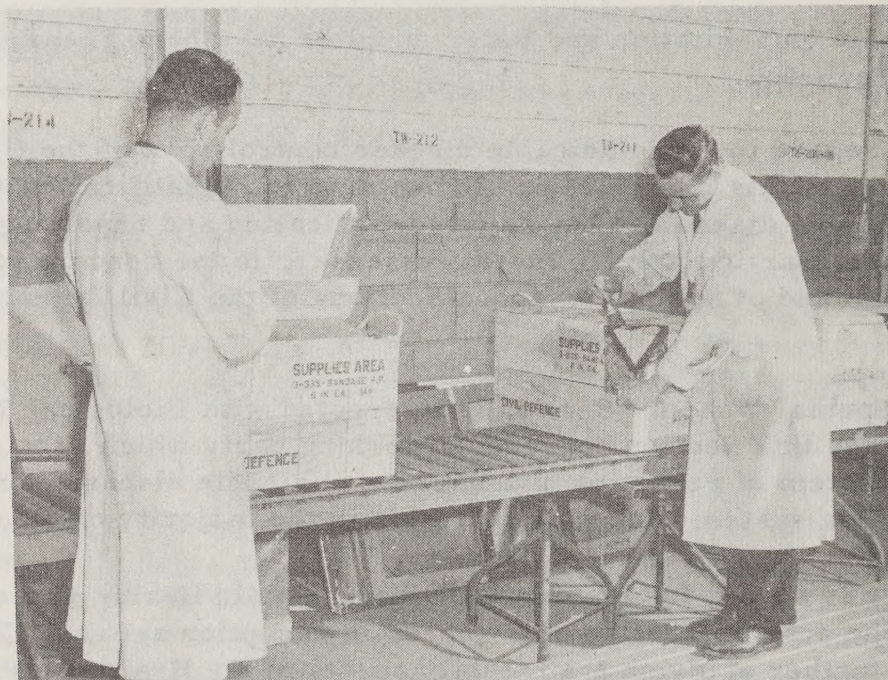
The Special Weapons Section is concerned with the health aspects of nuclear, biological and chemical warfare. Mention has already been made of their work with regard to the decontamination of casualties who have been exposed to fallout from nuclear weapons and insofar as biological warfare is concerned, to the working party on the identification and reporting of communicable diseases.

Their main task is in connection with what is regarded as the major threat namely, nuclear warfare. In order to do everything possible to minimize the health hazards of this type of warfare the officers in the Special Weapons Section are continually studying developments and by liaison with appropriate agencies such as the Defence Research Board. A recent

development has been the formation at federal Civil Defence Headquarters of a radiological defence group. Officers of the Special Weapons Section are members of this group. Other members are the scientific advisor to the Federal Civil Defence Co-ordinator and members of the planning and engineering sections. As a result of this work they are able to prepare and disseminate information on this important subject.

HEALTH SUPPLIES

Health Supplies Section of the Health Service is concerned with the procurement, packaging, storage, distribution and salvage of health supplies. It is also concerned with the training of pharmacists for their Civil Defence role.



Production line methods are used in packaging Health Supplies.

Procurement

At present there is authority to purchase a stockpile of health supplies to the value of \$11,000,000.00 plus \$625,000.00 for the sixteen improvised hospitals mentioned earlier in this article. Health supplies to the value of approximately six million dollars have already been purchased and received. The procurement of these health supplies is a laborious and time-consuming operation. To begin with, a decision must be made regarding what items are required, their specifications and the quantities required. If, for example, surgical instruments are required, the medical consultant must, with the advice of an appropriate committee or working party, select the best instruments for the particular requirement and decide upon the number needed. The Health Supplies Officer must then prepare requisitions for these instruments. These requisitions are processed and passed to the Department of National Defence and eventually to the Department of Defence Production, who request pharmaceutical and health supply firms to submit tenders for the order.

Packaging

Essential requirements in packaging are that supplies are efficiently packaged for long term storage and that they are packaged in a functional manner. When a unit is to be packaged a prototype must be prepared. The preparation of a prototype and the packaging of a unit requires expert knowledge.

It was first thought that this would be done by private industry but during the past year it was decided that provided the necessary staff could be authorized, that the packaging could be done with the resources of the Civil Defence Health Service and the Department of National Defence. Additional staff was provided to begin the packaging of Advanced Treatment Centres and Federal Individual Hospital Emergency Supplies (Hospital Cupboards). These units are being packaged at the present time. The packaging of all the Health Service units is, of course, a tremendous undertaking.

Storage and Distribution

The storage and distribution of the Health Supplies stockpile is a joint undertaking of Civil Defence Health Service and Department of National Defence. At present medical equipment depots for the storage of health supplies for Civil Defence and the Armed Services are being built in British Columbia, Alberta, Manitoba, Ontario and Quebec. A further depot will be built in the Maritimes when a suitable site is selected. These depots for mutual use will serve as regional depots for Civil Defence Health Supplies.

As soon as they are completed the stockpile will be dispersed to these regional depots. In addition to these, two additional depots will be required, one on Vancouver Island and another in Newfoundland. Since the Department of National Defence does not require depots on these islands their provision becomes a Civil Defence Health Service responsibility.

Health supplies must eventually be dispersed down to Health Assembly points where they will be available for operational use by health units. Present policy is that in peacetime accommodation will be selected for this purpose but that the stores will not actually be dispersed until a national emergency is imminent. When the health supplies are dispersed down to Health Assembly Points they will then come under provincial control.

It is realized that even in peacetime it may be necessary to have intermediate health equipment depots between regional depots and health assembly points. Present policy is that any operational stores so dispersed in peacetime would remain under federal control. It is emphasized that the above statement refers to operational stores only, training health stores come under provincial control when they are sent to a province.

Role of Pharmacists

Pharmacists as well as being health supplies officers, also assist at the A. T. C. and do laboratory work. During 1958 a manual was published entitled "Laboratory and Blood Techniques for Pharmacists in Civil Defence".

TRAINING

Civil Defence College

Several courses were held for health personnel at the Canadian Civil Defence College at Arnprior during the past year. These included courses for Physicians and Dentists, Veterinarians, Pharmacists, Nurse Specialists, Nurse Educators, Courses for Instructors in Casualty Simulation and the Conference for First Aid Instructors mentioned earlier. The course for veterinarians was the first course for this profession and was held under the joint chairmanship of the Health Service and the Canadian Veterinary Medical Association. The courses were well attended by suitable qualified candidates.

Undergraduate Training

During 1958 progress was made with undergraduate education in the health aspects of Civil Defence. All hospital schools of nursing and university schools of pharmacy now include training in the health aspects of Civil Defence in their curriculum. Most of the university schools of nursing are also including this information in their teaching programs. Several of the medical schools include lectures on disaster medicine in their course of study. Officers of the Health Service have recently given lectures at the Ontario Veterinary College, Guelph, Ont.

Miscellaneous Training Activities

Officers of the Health Service participated in the planning and holding of civil defence exercises and conferences. They attended and participated in professional meetings on invitation and spoke to professional groups on Civil Defence health matters. They also participated in courses held for active and reserve medical, dental and nursing officers of the Armed Services.

SUMMARY

This article has stated the major problems and interests of the Health Service in Civil Defence. It has reviewed the organization of the federal Health Service and described some of the activities of the Service. Continued co-operation and support of all Civil Defence organizations, federal, provincial, zone and municipal; of the governmental health departments; of the health professions; of the Armed Forces Medical Service and the appropriate U.S. health agencies will have a bearing on the future success of this particular aspect of Civil Defence planning.

(Assistance in compiling this report has been received from Dr. F.C. Pace, Medical Consultant, Special Weapons Section; Dr. G.E. Fryer, Medical Consultant; Miss E. Pepper, Nursing Consultant and Mr. E. Matthews, Medical Supplies Officer. E.J.Y.)

F.C.D.H. STAFF CHANGES

ROBERT L. BEATTY

After serving for nearly three years on the staff of the Civil Defence Division of the Department of National Health and Welfare, Robert L. Beatty, assistant director, Training and Education, has taken up a new post with the Emergency Measures Organization of the Privy Council Office.

In his new position, Mr. Beatty will be concerned with many aspects of planning relating to the problems associated with the continuity of government in wartime, particularly those connected with the development of the regional system of emergency government announced to Parliament last August.

Mr. Beatty has requested the editor to use this notice to tell the members of the federal staff and all those with whom he dealt at provincial and municipal headquarters how much he truly enjoyed the association.

Mr. Beatty said, "The fine spirit of co-operation that developed in all these contacts made the work atmosphere a most pleasant one and resulted in many friends with whom it is hoped a lasting association will be maintained both in and outside my new field of closely allied endeavour".

It is expected that a replacement for Mr. Beatty will soon be appointed.

HOWARD S. BERGIN

Mr. Bergin, formerly Training Courses Officer at F.C.D.H., has received the appointment of Chief, Civil Service Civil Defence. The position was formerly held by the late Major Peter Bingham.

ERIC ATKINS

Mr. Atkins of Training and Education has now been confirmed in the position of T.O. 6.

FRANK E. GOUDGE

Mr. Goudge has been appointed to the position of Senior Resources Officer, which was vacated upon the retirement of Mr. E. Phillips.

LIVERPOOL N.S. WELFARE SURVEY

By Paul Stehelin,
Chief, Welfare Service,
Federal Civil Defence Headquarters.

In 1956 federal Civil Defence undertook detailed studies of problems relating to evacuation and reception. A complete reception survey of Arnprior was conducted from which a simple basic reception plan was evolved.

As a result it was decided that this type of planning should be carried out in all provinces and as a policy the federal government undertook to conduct and bear the expense of one survey in each province. This, it was felt, would promote organization, planning and training in the vital aspect of reception. (Several reasons favoured this method of approach, the main ones being that actual community property and records would be used, an actual operational plan would be produced and the publicity anticipated would stimulate Civil Defence interest in those reception areas which generally had progressed much too slowly.)

The first project was held in Woodstock, N.B. in 1957. It was deemed successful and in 1958, authorization was obtained for a similar undertaking in Nova Scotia. Liverpool, N.S. was suggested as the most suitable and sufficiently organized town for such a project. In the summer the Provincial Co-ordinator with the Federal and Provincial Welfare Directors, visited the area and discussed the matter with the Town Council in session. The Mayor and his Councillors were found to be very well informed in Civil Defence matters and indeed very keen to proceed with the town's reception plan. A special resolution was passed authorizing the Survey and placing all town facilities and personnel at the disposal of the project. The date was set at October 19th - 24th, 1958.

A certain amount of local preparatory work was then undertaken. Public information plans were begun in order to ensure that the people of the town would be adequately informed on all aspects of the Survey long before it began and to extend the information throughout to the remainder of the Province. At the same time administrative arrangements were undertaken at Ottawa by the staff designated to participate in the project.

SURVEY

The project was under the direction of the Ottawa group consisting of three officers assisted by the Provincial Co-ordinator, Deputy Co-ordinator and Director of Welfare Services. The participants were gathered from the larger towns of the Nova Scotia mainland.

The project was launched on Sunday afternoon with a briefing meeting. The provincial planning basis for the survey was then given as follows: "The

district of Liverpool with a population of approximately 5,000 people will be required to receive and care for 10,000 Phase "B" evacuees from Halifax."

The group was divided into three working parties each under the direction of a federal representative. Monday, Tuesday and Wednesday were devoted to the gathering of statistics. From the assessment rolls, complete records of dwellings and commercial properties were compiled and tabulated. Non-assessed property such as schools, churches and other such establishments were visited with a view to producing rough plans and specifications in order to ascertain reception and service capacity. A survey of commercial and non-commercial feeding establishments was carried out by interview.

It was deemed necessary to provide the participants with a limited amount of interviewing experience and this was achieved by conducting actual interviews with a number of residents in various areas, in their own homes, representing a fair cross section of the population. It should be mentioned here that these people were interviewed primarily for the purpose of teaching the application of minimum matching factors considered essential in successful billeting even under emergency conditions. Actual contact with the population is deemed most essential if plans are to take into consideration the most essential factors of human relations.

During this same period, the Civil Defence organization was brought into play by presenting to the Service Heads the support that Welfare would require. To orient themselves properly they followed the development of the Welfare plan and submitted their separate supporting plans. All these activities necessitated a considerable amount of reconnoitering and liaison work on the part of a great number of people, e.g. traffic control (in Liverpool separate from Police) found itself deeply involved in the Survey from its very inception.

Other heads of services, e.g. water, sewage and electricity, entered into the project with enthusiasm due to the fact that perhaps for the first time, the requirements for their services during an emergency, took a form of realism.

Beginning on the Thursday the entire group supported by the Heads of Services and representatives of the town government, met to assess the information obtained and draft a reception plan. This phase was deliberately carried out at a slow pace in order to provide ample time to consider all points and provide detailed instruction. While discussions proceeded, federal officers with the assistance of Major Wigglesworth, drafted the plan as succeeding items were agreed upon. A third officer, a representative of the town engineering staff, plotted the map in accordance with decisions reached.

Some of the principal planning aspects considered during this time merit mention here -

- (a) The role of civic government both executive and administrative, was brought out clearly as a responsibility which continues in an emergency. More specifically, reception in all its aspects is a responsibility of town government.
- (b) The importance of the welfare centre areas and the selection of the welfare centre buildings was emphasized. Other services, especially traffic and engineering found themselves very much involved in the adoption of welfare centre layouts.

It cannot be emphasized too much that the application of joint planning methods which is possible only in an actual planning area, has a tremendous influence in bringing all parts of Civil Defence to a better understanding of their respective roles.

- (c) The probable inadequacy of sanitation and water supply under emergency conditions in some parts of the district necessitated changes in the welfare thinking and demonstrated the fact that many factors, beside statistical, varying perhaps from location to location, must be considered in reception planning. The engineering and utilities services coming into contact with the requirements of reception services for the first time, contributed immensely to the plan.
- (d) This survey demonstrated very clearly that increased fire hazards will always be a problem especially in areas like Liverpool where the dwellings are predominantly of frame construction. Perhaps additional equipment cannot be obtained but it was felt that the Fire Service could through improvised methods and the use of additional trained personnel, assure at least that the equipment on hand would be manned 24 hours a day.
- (e) The application of matching factors in lodging is another important point which was discussed at length. It is expected that the problems of families living together will be lessened considerably if some matching of evacuee family to reception area family can take place at initial placement or as soon as conditions permit. The following factors were considered during the survey: size of family, language, occupation, origin, religion and health.

These factors will carry a different weight in different parts of Canada. They are intended to act as a guide to lodging officials. In themselves they are not a guarantee of suitability but have been shown to be important in other situations involving the billeting of evacuees, especially where the time of billeting has been longer than several days.

If time and circumstances do not permit any initial matching, the task of reshuffling families will have to be undertaken at the earliest moment to avoid many of the problems which will arise inevitably under

these circumstances. This emphasizes the need for proper survey records and for organization of the lodging service.

- (f) Basement availability should also be mentioned as an aspect of the Survey which seriously engaged the attention of the group. It was found that considerable information regarding construction and usefulness of basements as refuge space was obtainable from assessment records. About half the dwellings were found to have full basements although a good number of these may be low and probably have dirt floors. The outstanding principle which emerged is that surveys must ascertain what refuge space is available.

By Friday noon the draft plan including a map had been produced and copies were in the hands of all participants early in the afternoon before they dispersed (copies of the Liverpool Survey are available to provincial Headquarters).

CONCLUSION

Possibly the outstanding finding emanating from this project is that the value of this type of survey and planning exercise can be measured in direct ratio to the degree of welfare organization of the town selected for the survey and of the provincial headquarters. With such a state of organization existing in N.S., there is good hope for development of welfare organizational and operational planning throughout the reception areas.

Public Relations generally in the reception areas are good but they can be improved immeasurably when there is better understanding of the task required by the community. Survey activities which involved directly and indirectly approximately 200 people in a town such as Liverpool forcibly brought home the need and the requirements for welfare planning.

The town of Liverpool is to be commended for the excellent organization they have produced. A demonstration of their Control Centre in operation was most impressive. Undoubtedly, a great deal of the success is due to the fact that the Mayor and his Council are actively directing Civil Defence and that their Co-ordinator is an employee of the Town. The calibre of the directing personnel is very high consisting chiefly of young men and women who are leaders in business and social organizations. Also, industry is promoting Civil Defence by assisting with personnel and material wherever possible. The active and personal participation of Hon. E.D. Haliburton, the Minister responsible for Civil Defence, was extremely helpful in that he explained provincial CD policy to workers and municipal officials and emphasized his satisfaction with the results of the undertaking.

PROTECTION FACTOR OF BUILDINGS AGAINST
RADIATION FROM FALLOUT

The following table gives the approximate protection factors for most types of present day construction. For more massive types of construction the protection factors would be higher.

BUILDING PROTECTION FACTORS (ESTIMATED)

| STRUCTURAL TYPE | PROTECTION FACTORS | | |
|--|--|--------------|----------|
| | Frame | Brick Veneer | 8" Brick |
| <u>Central Mortgage & Housing</u> <u>3 Bedroom Houses</u> | | | |
| 2 Storey: | | | |
| Ground floor centre | 2 | 3 (plus) | 7 |
| Basement centre | 10 | 16 | 23 |
| Basement corner | 15 | 25 | 41 |
| 1½ Storey: | | | |
| Ground floor centre | 2 | 3 (plus) | 8 |
| Basement centre | 8 | 12 | 17 |
| Basement corner | 15 | 20 | 26 |
| 1 Storey: | | | |
| Ground floor centre | 2- | 3- | 5 |
| Basement centre | 7 | 8 | 9 |
| Basement corner | 11 | 12 | 13 |
| 3 Storey Apt. block (6 units) | | | |
| Ground floor | 2 | 3.5 | 8 |
| Basement centre | 13 | 16 | 23 |
| Basement corner | | 31 | 49 |
| Multistorey reinforced concrete | 10 (away from windows) 1000 or more 1000 or more | | |
| Lower floors | | | |
| Basement (entirely below ground surface) | | | |
| Shelter below ground surface (3 ft of earth cover) | | | |

For basements in homes the floor of the basement is taken to be 4' 6" below ground level. If this depth is greater the factor will be higher, and vice versa.

For the reinforced concrete buildings "lower floors" means all floors below the top one or two, and the basement is assumed to be completely below ground level.

For shelters below ground surface the point of weakness is the entrance. Inadequately protected entrances may reduce the protection factor appreciably.

The presence of adjoining buildings will increase the protection factor.

The above information was produced by the Radiological Defence Group which was recently set up at F.C.D.H. and comprises members drawn from the Defence Research Board, the Special Weapons Section of Health Services, Plans & Operations Section and Training & Education Section. The purpose of this Group is to examine the available scientific and statistical data on radiation with a view to translating the desirable safety and precautionary measures into operational methods and procedures which can be readily and most simply adopted and applied by Civil Defence.

ANNUAL TRAINING PROJECT FOR INDUSTRIAL RESCUE SQUAD

The emergency squad of the Dominion Bridge Company of Lachine, Quebec, made their annual weekend visit to the Canadian Civil Defence College at Arnprior, Ontario. The 1958 visit took place in late November with 27 members of the squad leaving the Lachine plant by chartered bus. From Saturday morning until the group left the College at 2:30 Sunday afternoon, a continuous program of demonstrations and practical exercises were carried out under the supervision of the College rescue staff.

The demonstrations included rescue from upper storeys, chainsaws and generators, rescue by debris clearance and raising and jacking floors. A night exercise was conducted Saturday evening which involved the use of packboards, emergency generator sets and the conversion of an equipment truck into an emergency ambulance. For this exercise 18 Arnprior residents acted as the casualties. R.M. Herbison and L.A. Traver, the co-directors of the squad, were in charge.

The Office of Civil and Defense Mobilization's national emergency stockpile of antibiotics is always kept fresh by rotating out older supplies for use by the Red Cross and International Cooperation Administration, and replacing with newly-made stocks.

(From News Features, O.C.D.M.)

FINAL PREPARATIONS MADE FOR NATIONAL TEST EXERCISE

Representatives from all provinces in Canada convened at the Canadian Civil Defence College, Arnprior, Ontario, from February 9 to 13, to complete final preparations for the forthcoming national test exercise "Co-operation III" which is to be held on April 24 and 25. The second phase of the exercise will be held as a federal-provincial staff study, extending over a period of time.

During the Directing Staff Conference, all phases of the exercise were considered. Detailed lectures and discussions reviewed the attack pattern, the warning system, the method of plotting fallout areas, the role of the Armed Services and the R.C.M.P., the role of the various Civil Defence Services and publicity. In general, the purpose of the conference was to afford provincial co-ordinators or their representatives an opportunity to plan in detail the way in which Co-operation III is to be conducted within their respective provinces.

Co-operation III will begin at 1600 Z, April 24, 1959, and will last for 24 hours dealing with problems arising from Phases "A", "B" and "C" of the Survival Plan. The second part will deal with problems relating to Phase "D" of the Plan.

As in previous years, the objectives of the exercise will be to train control centre staffs at all levels in Civil Defence functions, including the method of co-operation with the Armed Services; to test communications and warning systems procedures; and to study specific problems which might arise in the implementation of the Survival Plan, including their impact on government departments other than Civil Defence, and make preliminary assessments of the ability to meet the immediate demands arising from some of these attack problems.

The Federal Civil Defence Control Centre at Arnprior will be in full-scale operation for the exercise. The majority of provinces have indicated that they will participate in Co-operation III and, similar to last year, the United States participation will be mainly at the federal level. However, provincial and municipal Civil Defence officials at border control centres plan to invite their counterpart U.S. Civil Defense officials to participate in the Canadian exercise.

It is hoped to place increased emphasis on reception area problems this year. This will be done in part by making an assessment of certain welfare items essential to the survival of the population. Although it will not be feasible to study all of the items essential for survival, a selected few will be considered in both parts of the exercise.

The exercise will be defined almost entirely to a study of determining the quantity of survival items that would remain after an attack, how much

would be needed in a given area and how this would be distributed. The items to be considered include: health and medical supplies and equipment; food; wearing apparel; light, power and fuel; emergency housing and lodging; engineering construction equipment and supplies.

A full-scale test of the national Civil Defence Warning System will be a feature of Co-operation III. Immediately the exercise begins, the Warning Control Officer at St. Hubert, Quebec, will determine that all provincial, target city and major zone headquarter terminals are manned and ready to receive warnings as they develop. The WCO will pass all messages of nation-wide concern direct to all stations. In addition to the national warning system hook-up, a teletype network from the Federal Control Centre to all provincial Civil Defence headquarters will be in operation, plus a direct line to the Office of Civil and Defense Mobilization, Battle Creek, Michigan.

It is expected that between three and five thousand Civil Defence volunteers across Canada will participate in this third annual test exercise. A resume and photo story will be carried in the next issue of "Civil Defence - Canada".

CHANGES IN CCDC COURSE PROGRAM DURING MONTH OF MAY-JUNE, 1959

Course 364 changed from Fire Forum to D.N.D. Staff Orientation.

Course 365 changed from Pharmacists Indoctrination to D.N.D. Rescue.

Course 366 changed from Casualty Simulation to Fireman and Police Radiological.

LEGION PLANS CD RESCUE TEAMS IN 17,000 POSTS

An American Legion program to organize Civil Defense light-duty rescue teams in the Legion's 17,000 posts is now being launched.

With the backing of the Office of Civil and Defense Mobilization, the Legion's National Security Commission is co-ordinating a drive to organize at least one 26-member rescue squad in each post.

When fully trained, each squad will be prepared to do light rescue work, using hand tools and smaller power tools. These rescue forces will support local Civil Defense efforts during or after an attack or in natural disasters. All squads will be integrated into the nation's approximately 2,500 state and local Civil Defence organizations.

Up to half of the cost of training can be paid for by OCDM under the federal matching funds program. Similar funds can help buy the approximately 150 items of equipment needed by a typical light rescue squad. Part of the training for the Legion teams will involve taking Red Cross first aid courses. Many squads also will learn radiological monitoring for detecting dangerous fallout areas.

(From News Features, O.C.D.M.)

WINDSOR AREA PROMOTES INDUSTRIAL CIVIL DEFENCE ORGANIZATION

Industrial and commercial firms in Windsor, Ontario, are actively co-operating with the Windsor and Essex County Civil Defence organization. Over 95% have appointed Civil Defence committees within their own plants and in late December a general meeting was held by the industrial group which featured a panel discussion. Among the papers presented was one on the "Biological Action Of Radiations" which was given by Assistant Professor Robert J. Doyle of Assumption University. Professor Doyle's address follows;

Although the details of the action of radiations on such a complex chemical "factory" as the living organism are as yet obscure, certain major aspects are becoming clear. To use a rather domestic analogy, the action of radiation may be compared to the effect of rain falling on a fried egg. In this example, the egg corresponds to the smallest functional unit of the living creature, the cell. In the cell, an organizing and operating centre, called the nucleus, corresponds to the egg yolk and the remainder of the cell, called the cytoplasm, is equivalent to the white.

As the raindrop strikes the egg, there is a direct local release of energy or blow to the cell. As the drop spatters, further energy releases may occur. In the biological system, the energy transfer from the particle to the cell is accomplished by ionization and excitation of the constituent molecules of the cell. If an important molecule is in the path of the radiation particle, direct damage may accrue to the cell. In most cases, however, a traversing particle will ionize a water molecule which will then produce a biologically-demonstrable effect elsewhere in the cell.

Biological damage by radiation, then, is the function of the energy absorbed by the cell, the ionization resulting before a function of the velocity of the particle and the magnitude of its charge. Damage may further be divided into a direct component, due to energy transfer in an especially sensitive volume of the cell, and an indirect component due principally to ionization of water. One remarkable fact about radiation damage is that an extremely small amount of energy is necessary to produce a profound biological effect.

At the same time, it is necessary to indicate that, in view of the wide variety of atomic and molecular changes which might occur in a cell and considering that most organisms are composed of many, many cells, it is not surprising that the effects of radiation are manifested in many ways and that many factors have the capacity of influencing radiation response.

Radiation Damage

Radiation has its most marked effect on cells which are actively multiplying. In the human body, these are the subsurface layers of the skin,

the blood-forming organs, the reproductive organs and the white blood cells. This fact explains the important beneficial effects of radiation in cancer therapy where the actively dividing tumour cells may be specifically killed without extensive damage to the more resistant bone, nerve or muscle within which they may be situated. Another recent use of this same principle, this time in the field of agriculture, has been the selective irradiation of the reproductive organs of certain male flies. Large numbers of sterile products of this procedure are released. As the females mate only once during their lifetime, many subsequent matings will not produce offspring. It is believed that repetitions of this process over several years will reduce the numbers of this crop pest to a point where it will no longer be significant.



Members of the Industrial Group panel discussion held at Windsor, Ontario, are pictured (L. to R.) Mr. W.H. Arison, Assistant Production Manager, Hiram Walker & Sons Ltd., Professor William G. Colborne, Assumption University, Dr. Frank De Marco, (Chairman of the panel) Assumption University, Dr. Maurice Adelman, Assumption University, Assistant Professor Robert J. Doyle, Assumption University and Major R.G. Betts, Personnel Manager, Hiram Walker & Sons Ltd.

Thus far we have discussed mainly the lethal action of radiation damage. Other effects might also be studied. For example, low doses of radiation may produce suppression of certain chemical activities of the cell, delay in cell division, etc.

One of the most interesting of the non-lethal effects of radiation is called mutation. Basically, mutation is caused by damage to the organizing centre or nucleus of the cell which produces a change in a characteristic of the cell and its subsequent progeny. In most cases, mutations involve the loss of some desirable feature or features, but rarely, they may be advantageous. In the drug industry, higher and higher levels of penicillin production were obtained by using a series of mutant organisms having increased capacity to produce the drug. Several years ago, we obtained a mutant of yeast by radiation which had the unique ability to resist radiation.

At this point, it might be well to point out that mutation (and other forms of radiation damage) is being continuously produced in living organisms as a normal part of the life process. The effect of radiation (and other agents which are mutation-inducing) is to increase the frequency of these events above the usual or background level.

Protection Against Radiation

We have mentioned previously that many factors have the capacity to influence radiation response. Aside from shielding, which has been discussed elsewhere, it is possible to protect organisms from radiation damage by treatment with various chemical agents prior to exposure to radiation. After exposure, also, many devices can be employed to increase survivor levels. Alper has recently summarized these phenomena by stating that "any process which depresses the activity of the cell or organism will enhance survival". Interesting speculation concerning post-irradiation treatment and "anti-radiation pills" has grown out of these experiments.

Conclusion

Finally let us repeat that biological radiation damage is constantly occurring in living organisms. As doses or irradiation increase, the frequency of damage, and, therefore, the possibility of more severe or even lethal response increases. The responses, however, as we have pointed out, may be reduced or at times be turned to man's advantage in the biological as well as the engineering and physical fields.

SEARCH SUCCESSFUL

TINY RADIUM VIAL

IS ONE OF MANY

Doctors at Halifax's Victoria General Hospital breathed easier recently with the knowledge that the tiny, potentially lethal radium tube missing from hospital for 26 hours had been found in a 40-foot mound of garbage in the city dump and was back in its operating room safe.

Although it was the first time in the more than 30 years the hospital has been using radium that a tube was lost outside the room in which it was being used, further precautions will be taken in future.

"There is a system in operation that should work well", said Dr. Joseph Stapleton, head of the hospital's radiotherapy division, "It didn't, so the system will have to be tightened up even further".

The hospital has 70 to 80 such radium tubes for use in treating disease. Each is signed for when taken from the safe and the log is also signed when it

is put back. At regular intervals the book inventory is checked with the actual physical inventory, said Dr. Stapleton.

"It was during one of these checks with the actual tubes against what the books said we should have that the absence of this tube was found Monday afternoon," he said. "It was an incredible accident and due to human error."

Dr. Stapleton said that working back hospital officials feel it must have been dropped on the floor and swept up by a janitor. It probably was taken to the dump by the hospital's garbage truck on Friday, he said.

The radium tube, about the size of a gramophone needle, was found Tuesday afternoon a short distance from the bottom of a 40-foot seawall of garbage at the City Dump. William A. Bridgeo, chief of Nova Scotia's Civil Defence radiation section, ignored police warnings and walked along the shore at low tide to discover the "hot spot".

The tube was found after more than two hours of painstaking digging through the rubble -- most of it by hand -- by three scientists. They were Mr. Bridgeo, Victoria General Hospital physicist Jack Wakeley and Nova Scotia Light and Power electrical engineer Ken McGrail.

The find climaxed a thorough search of the hospital, adjacent sewers, the hospital grounds, the dump and routes leading to it from the hospital. Although it only cost \$200, the radium tube could be dangerous if carried by a human for some time -- even lethal if the symptoms of radiation sickness were not diagnosed early.

(From The Halifax Mail-Star, January 14, 1959.)

C.D. LAUNCHES NORTHERN SEARCH

The value of Civil Defence in peacetime was demonstrated recently when the Officer-in-Charge, Peace River Zone, Mr. S.M. Dunbar, organized a search party which successfully located a missing Grande Prairie couple, Mr. and Mrs. J. Glenbeck, who were overdue on a hunting trip south of the Northern Alberta city.

The Glenbecks had left Grande Prairie on a Saturday morning, expecting to be home again that night. Fear for their safety mounted when they had not returned at one o'clock on Sunday morning. The couple had left their children with a baby sitter. The overnight temperature was 16 degrees below zero.

Mr. Dunbar's telephone rang that morning at 9:45 with the first call for help. By 10:15 word had spread throughout the city, resulting in several more calls with offers of assistance. Mr. Dunbar took immediate action, calling

for volunteers who could take part in a search to meet prior to 11:00 o'clock. Sergeant Van Blaison, Officer Commanding the Grande Prairie R.C.M.P. Detachment, together with Corporal Mills, offered to provide whatever assistance that was needed.

Because of the wide area to be covered -- and the nature of the country -- it was decided that only vehicles equipped with two-way radio or telephone should be used. Oil Equipment Company, Ltd., a supply company, provided Civil Defence with an additional radio-equipped car, together with extra fuel.

The vehicles were loaded with blankets, first aid kits, and food. By 11:15 a.m. the search parties were moving along the seven oil company roads leading south from Grande Prairie. The search extended as far as the area between the Simonette and the Smoky Rivers.

The Glenbecks were found Sunday afternoon, in good condition. They had become stranded when their car broke down. Radio gave the good news immediately. The search parties returned to Grande Prairie at 1:30 a.m. the next morning.

(From The Circular, Alberta, February 1959)

CIVIL DEFENCE ACHIEVEMENT

By Helen A. Martenson,
Director of Public Relations and
Publicity for Saskatchewan CD

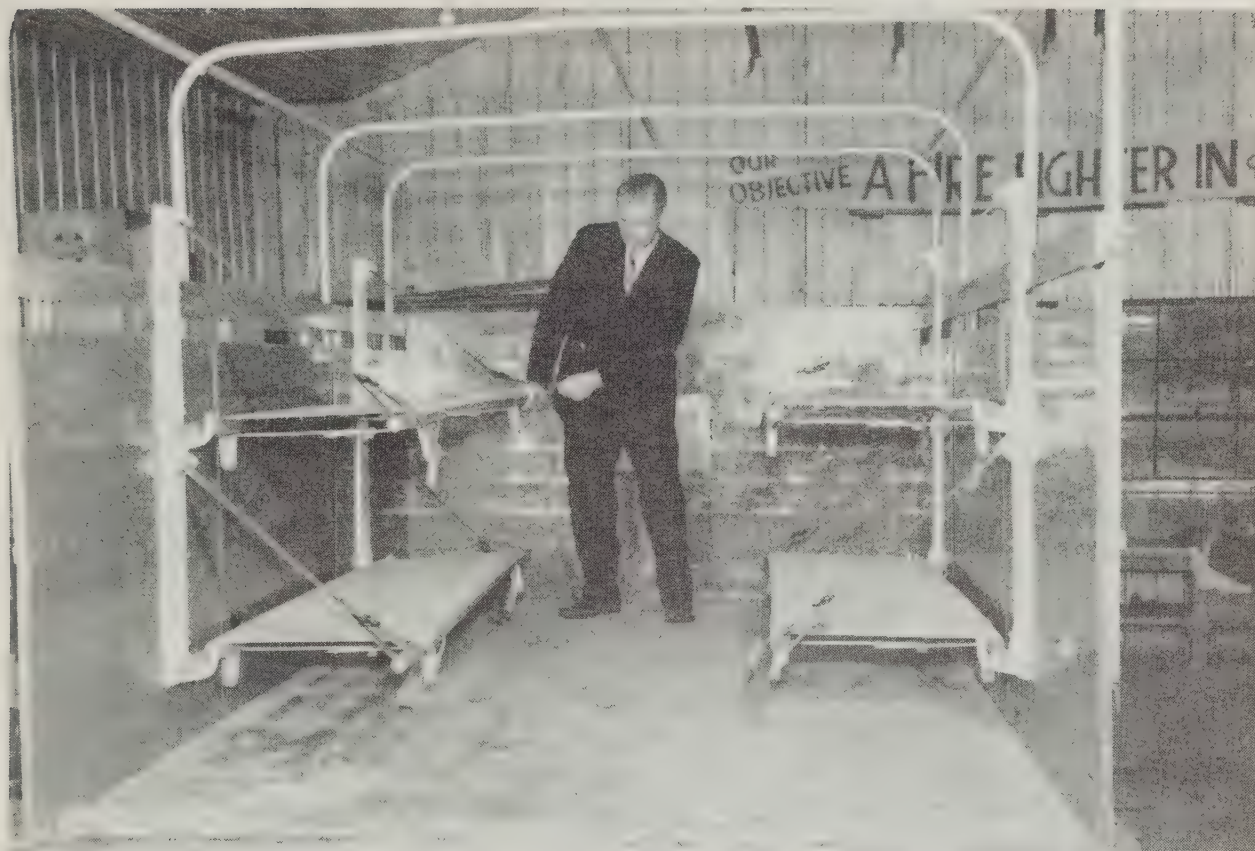
One of the most recent achievements in Civil Defence is the conversion of trucks into ambulances in 15 minutes.

We, in Regina, remember at the time of the Winnipeg flood, when hundreds of patients from Deer Lodge and other hospitals were evacuated to Regina and there were only two ambulances in town. It was hectic.

Heads of transportation companies -- railways, bus companies, trucking companies maintain -- and they are right -- that in any disaster, transportation is essential. Many a person who has been injured in an automobile accident or train wreck is harmed more by the manner in which he is carried to the hospital than by the injury.

After considerable research and work, Civil Defence experts have come up with a device to convert trucks to ambulances -- and it is very simple. All it requires is that the truck bodies be pre-drilled to take the wing bolts which hold the supports for stretchers. The drilling does not weaken the truck. It is a matter of minutes to attach the fittings by means of the bolts through these holes -- slide in the stretcher -- and a patient, no matter how ill or how disabled, can safely ride in comfort.

TRUCK CONVERSION FOR STRETCHER CARRYING



Use of stretcher fittings as installed in Saskatchewan Civil Defence rescue truck.

These fittings are being purchased and stockpiled in target area hospitals as an integral part of Canada's Civil Defence program. This plan has been accepted by the heads of major transportation companies in the country who have thus committed their equipment for instant use in a community emergency. These fittings will soon be in use for training purposes.

REFLECTIONS ON AN EMERGENCY CLOTHING COURSE

The following is an extract from an article written by columnist Frances L. Denney in the Kitchener-Waterloo (Ont.) Record.

347
MH (Mixed Sizes)
(16) Winnipeg 18/4/54
102-9

No, that's not some algebraic equation.

But it is mumbo-jumbo, unless you're a civil defence volunteer.

For those in the emergency clothing brigade it means simply: Bale No. 347; men's socks of mixed sizes, packed at No. 16 clothing depot in Winnipeg on April 18, 1954. The gross weight is 102 pounds and the bale takes up nine cubic feet.

That's just one of the things that two IODE members from Kitchener absorbed at the highly concentrated CD welfare course at Arnprior last week.

Mrs. W.S. Strahl and Mrs. Wilfred Schlee, who are both members of Queen Anne Chapter, IODE, were among the 35 IODE members in Kitchener who took the eight-week basic welfare course at Kitchener headquarters last October and November and, as far as we know, they are the first women volunteers from Kitchener to be sponsored at the Arnprior training centre.

Another eight-week course begins tomorrow night at Kitchener CD headquarters, and the Arnprior "veterans" urge you to take it. It's worth it.

The Kitchener women admitted they were not exactly prepared for the intensive course at Arnprior. It was five days packed with lectures on emergency clothing, feeding, lodging, registration and personal services, plus instruction training. The days began at a cold, dark 7 a.m., and studies went on until 2 or 3 a.m. the next day. There was little socializing such as you find at convention workshops.

But the women raved about the excellent facilities, obliging instructors, the good food, and the tremendous interest generated in the course. They met a woman reporter from New Glasgow, N.S., who had worked with CD at the Springhill mine disaster; John A. Bamber, who is a supervisor at Homewood Sanitarium, Guelph; a physiotherapist, a registered nurse, a hospital switchboard operator, a welder, a social worker, a factory foreman, a housekeeper, a retired auctioneer and seven other housewives from Ontario.

All were not novices at Arnprior. A number had been there on CD courses before, one woman as often as seven times.

That was one of the busiest -- and the most interesting weeks of my life," Mrs. Schlee said. "If more women could go to Arnprior they (CD officials) would have no difficulty stimulating greater interest in civil defence," Mrs. Strahl said.

They learned about a CD survey in Orillia, which would serve as a reception area for evacuees, on the emergency ratio of four to one. For instance, if you had a 10-room house you would be expected to take 40 evacuees in an emergency.

The Kitchener women learned that the emphasis is on self-survival.

NATO CD WORKING PARTY ON FIRE FIGHTING



The 1958 meeting was held in Great Britain in late October. The delegates are shown as follows:
Front Row (L. to R.) – W.J. Scott, O.B.E., Q.C., (Canada), Lt-Col. Jacques Chanteaud (France), M. Rudler (NATO - Paris), Chairman H.M. Smith, C.B.E., (Great Britain), Major E. Rombaut (Belgium), and E. Schmitt (Germany).

Rear Rows (L. to R.) – Kyle Laughlin (United States), F.C.A. Shirling (U.K. Staff), D.G.M. Middleton (U.K. Staff), W.S. Burton (U.K. Staff), Col. O. Piermarini (Italy), M. Dijon (France), and W.E. Eggink (Holland).

If everybody knew how to look after themselves, the problems attending emergencies would be greatly simplified. And this includes evacuation pack for refuge or the trunk of the car.

And did you know you can survive for hours, even in intense cold, in an old blanket with a plastic tablecloth on the outside?

The Kitchener women have to laugh about that intense cold bit. When they arrived at Arnprior it was 34 below. "But I didn't feel it nearly as much as coming back to Kitchener's frigid weather. It's drier at Arnprior," Mrs. Schlee said.

One thing they're sure they'll never forget. Seeing two houses blown up with 20 people inside.

"They use local people and plant them in the houses to be blown up," Mrs. Strahl said. "The houses were actually blown to rubble and, of course, the people are rescued as part of another course's training program.

"We were told that none of these human guinea pigs has ever been injured, but we can't figure out why they weren't".

All we can say is, it's a tough way to make a living.

"There is scarcely a branch of government, either national or local, which is not in some way implicated in this task. Yet Civil Defence is, in another sense, essentially a matter for the family and the individual."

(General Sir Sidney Kirkman, G.C.B.;
Director-General of Civil Defence,
Great Britain.)

Scientific research has shown that no pills or shots exist at present than can give humans any significant immunity to radiation from fallout. The Office of Civil and Defense Mobilization urges fallout shelters as the only known worthwhile protection from fallout.

(From News Features, O.C.D.M.)

MONTREAL CIVIL DEFENCE UNIT IN ACTION

The value of a municipal Civil Defence organization was vividly demonstrated at the tragic apartment building fire in Montreal last November. Headed by Major Maurice St. Pierre of the recently revived Civil Defence centre for Montreal, a small group swung into action and co-ordinated the activities of the various agencies involved. They provided a focal point for the factual and detailed distribution of information to the public concerning this fire. The pictures shown here were taken during and immediately after the incident.



Following the blaze, His Worship, the Mayor of Montreal, Sarto Fournier, visited the scene. Pictured here with the Mayor are: (L. to R.) Police Seg. Jean Langevin; Major Henry Calleja, Civil Defence, Chief of Operations; Mayor Fournier; Major Maurice St. Pierre, Head of Montreal Civil Defence Control and Assistant Director, Armand Durette of the Montreal Fire Department.

Photo by Dubost



Apartment residents are shown being interviewed carrying a few of their belongings.
Photo by Dubost



A portion of the fire ravaged apartment block.
Photo by Dubost



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